

Fluor Hanford
WSCF Analytical Chemistry
P.O. Box 1000
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FLUOR

Memorandum

To: S. J. Trent A0-21 Date: M8141-SLF-06-012
January 16, 2006

From: S. L. Fitzgerald, Manager *by William St Paul*
WSCF Analytical Chemistry

cc: w/Attachments
T. F. Dale S3-30
H. K. Meznarich S3-30
P. D. Mix S3-30
J. E. Trechter S3-30
File/LB

Subject: FINAL RESULTS FOR 100-DR-5 GW TREATMENT FACILITY REGEN WASTE
CHARACTERIZATION SAMPLE - WASTE STREAM - SAMPLE DELIVERY GROUP
WSCF20060002 - SAF NUMBER F04-034

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001,
October 31, 2002

(2) HNF-SD-CD-QAPP-017, Rev. 7, Waste Sampling & Characterization Facility Quality
Assurance Plan

This letter contains a narrative (Attachment 1) for sample delivery group WSCF20060002, the analytical results (Attachment 2), and the sample receipt information (Attachment 3).

SLF/grf

Attachments 3

RECEIVED
MAR 21 2006
EDMC



M8141-SLF-06-012

ATTACHMENT 1

NARRATIVE

Consisting of 3 pages
Including cover page

Sample Delivery Group	WSCF20060002
Sample Matrix	WATER
Sample Visual	N/A
SAF Number	F04-034
Data Deliverable	Summary Report

Introduction

One (1) 100-DR-5 Treatment Facility Regen Waste Characterization – Waste Stream sample (B1H3F5) was received at the WSCF Laboratory on January 3, 2006. The sample was analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, page 14, for a complete listing of approved analytical methods.

Inorganic Comments

Anions (Chloride and Sulfate only) – The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 8 for QC details.

All QC controls are within the established limits.

Chromium, Hexavalent – The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See page 9 for QC details. Analytical Note:

- No visible color development during reagent addition or after spike addition. Sample recovery was below established laboratory limits due to the presence of reducing compounds in the sample. Since the sample produced no visible color reaction, it is assumed that there is no Cr(VI) present in the sample. Therefore, the sample result shown in the Analytical Results Report is documented as less than the lowest Cr(VI) standard at which visible color is seen (0.01 µg/ml). Sample result was UX flagged.

All other QC controls are within the established limits.

ICP-AES Metals (Sodium and Chromium only) – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 10 for QC details. Analytical Notes:

- Preparation Date: 05-jan-2006.
- Sodium – insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Chromium – analyte detected in the preparation Blank was evaluated and there was no affect on sample result.

All other QC controls are within the established limits.

pH – The 24-hour hold time for this analysis was not met. A Laboratory Control Sample and Duplicate QC samples were analyzed with each delivery group per the GRP Letter of Instruction. See page 11 for QC details.

- Duplicate QC sample was analyzed on a non GRP sample# PFP-01/03/06-S-101-M (SDG# 20060007).

All QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.



Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline

Am – americium
Cm – curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

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ATTACHMENT 2

ANALYTICAL RESULTS

Consisting of 11 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical:

William A. Baird WWRB-11/16/2004

Client Services:

P.D. M. 1/12/2006

All results are reported on an "as received" basis unless otherwise noted in the comment section.

Confidentiality Notice: The information contained in this report is privileged and confidential information intended only for the use of the addressee. If the reader of this report is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone at (509) 373-7020.

Contract#: FH-EIS-2003-MEM-001

Report#: WSCF20060002

Report Date: 12-jan-2006

Report WGPP/ver. 1.1

Groundwater Remediation Program

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WSCF ANALYTICAL RESULTS REPORT

Attention:
Project:

Steve Trent
F04-034; F04-034

Group #: WSCF20060002

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic													
W060000006	B1H3F5	TRENT	18540-29-9	Hexavalent Chromium	WATER	LA-265-403	UX	< 0.0100	mg/L	1.00	0.010	01/03/06	01/03/06
W060000006	B1H3F5	TRENT	PH	pH Measurement	WATER	LA-212-402		8.22	pH	1.00	0.010	01/06/06	01/03/06
W060000006	B1H3F5	TRENT	16887-00-6	Chloride	WATER	LA-533-410		9.80e+03	mg/L	2.03e+004	6.9e+02	01/03/06	01/03/06
W060000006	B1H3F5	TRENT	14808-79-8	Sulfate	WATER	LA-533-410		6.85e+03	mg/L	2.12e+003	2.8e+02	01/03/06	01/03/06
W060000006	B1H3F5	TRENT	7440-23-5	Sodium	WATER	LA-505-411		1.18e+07	ug/L	2.00e+003	4.0e+05	01/11/06	01/03/06
W060000006	B1H3F5	TRENT	7440-47-3	Chromium	WATER	LA-505-411		3.58e+03	ug/L	20.00	64	01/11/06	01/03/06

MDL=Minimum Detection Limit
RQ=Result Qualifier

U - Analyzed for but not detected above limiting criteria.

X - Other flags and notes described in the comments/narrative.

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1

Groundwater Remediation Program

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WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20060002
Matrix: WATER
Test: Anions by Ion Chromatography

SAF Number: F04-034
Sample Date: 01/03/06
Receive Date: 01/03/06

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W060000006 BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Chloride	16887-00-6	9.30e+03	5.236	RPD	01/03/06	0.000	20.000	
DUP	Sulfate	14808-79-8	7.20e+03	4.982	RPD	01/03/06	0.000	20.000	
MS	Chloride	16887-00-6	9.84e-01	101.443	% Recov	01/03/06	75.000	125.000	
MS	Sulfate	14808-79-8	1.98e+00	100.000	% Recov	01/03/06	75.000	125.000	
MSD	Chloride	16887-00-6	9.56e-01	98.557	% Recov	01/03/06	75.000	125.000	
MSD	Sulfate	14808-79-8	2.03e+00	102.525	% Recov	01/03/06	75.000	125.000	
BATCH QC									
BLANK	Chloride	16887-00-6	<3.40e-2	n/a	mg/L	01/03/06	0.000	300.000	U
BLANK	Chloride	16887-00-6	<3.40e-2	n/a	mg/L	01/03/06	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.30e-1	n/a	mg/L	01/03/06	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.30e-1	n/a	mg/L	01/03/06	0.000	300.000	U
LCS	Chloride	16887-00-6	2.03e+02	103.571	% Recov	01/03/06	80.000	120.000	
LCS	Sulfate	14808-79-8	3.68e+02	92.000	% Recov	01/03/06	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20060002

Matrix: WATER

Test: Hexavalent chromium

SAF Number: F04-034

Sample Date: 01/03/06

Receive Date: 01/03/06

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W060000006

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Hexavalent chromium	18540-29-9	<0.01	n/a	RPD	01/03/06	0.000	15.000	U
MS	Hexavalent chromium	18540-29-9	0.009	16.981	% Recov	01/03/06	85.000	115.000	*
MSD	Hexavalent chromium	18540-29-9	0.009	16.981	% Recov	01/03/06	85.000	115.000	*
SPK-RPD	Hexavalent chromium	18540-29-9	16.981	0.000	RPD	01/03/06	0.000	20.000	

BATCH QC

BLANK	Hexavalent chromium	18540-29-9	<0.003	n/a	mg/L	01/03/06	0.000	2.000	U
LCS	Hexavalent chromium	18540-29-9	0.051	102.000	% Recov	01/03/06	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20060002
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

SAF Number: F04-034
 Sample Date: 01/03/06
 Receive Date: 01/03/06

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W060000006									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Chromium	7440-47-3	36769	91.922	% Recov	01/11/06	75.000	125.000	
MS	Sodium	7440-23-5	NA	n/a	% Recov	01/11/06	75.000	125.000	
MSD	Chromium	7440-47-3	37619	94.047	% Recov	01/11/06	75.000	125.000	
MSD	Sodium	7440-23-5	NA	n/a	% Recov	01/11/06	75.000	125.000	
SPK-RPD	Chromium	7440-47-3	94.047	2.285	RPD	01/11/06	0.000	20.000	
SPK-RPD	Sodium	7440-23-5		n/a	RPD	01/11/06	0.000	20.000	
BATCH QC									
BLANK	Chromium	7440-47-3	3.6	3.600	ug/L	01/11/06			
BLANK	Sodium	7440-23-5	<200	n/a	ug/L	01/11/06			U
LCS	Chromium	7440-47-3	986.9	98.690	% Recov	01/11/06	80.000	120.000	
LCS	Sodium	7440-23-5	1039	103.900	% Recov	01/11/06	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20060002
Matrix: WATER
Test: pH Direct Measurement

SAF Number: F04-034
Sample Date: 01/03/06
Receive Date: 01/03/06

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W060000014									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	pH Direct Measurement	PH	7.395	0.405	RPD	01/06/06	0.000	20.000	
BATCH QC									
LCS	pH Direct Measurement	PH	8.041	1.005	Ratio	01/06/06	0.900	1.100	

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F04-034

Group #: WSCF20060002

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Hexavalent Chromium: Matrix interference. No color develops during addition of reagents and after matrix spike; sample is chemieally reducing. ICP-AES: High chromium preparation blank result; no flag because sample result is high. Sodium sample result is beyond effective spike range (spike result marked "NA").

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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wgppcl/1 Report#: WSCF20060002

Report Date: 12-jan-2006

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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention:
Project Number :

Group #: 20060002

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
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RQ=Result Qualifier

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WGPPE v 1.1 Report#: 20060002

Report Date: 12-jan-2006

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W13q Worklist/Batch/QC Report for Group# WSCF20060002

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
27740	2	28115	31891	BLANK		Anions by Ion Chromatography
27740	8	28115	31891	BLANK		Anions by Ion Chromatography
27740	3	28115	31891	LCS		Anions by Ion Chromatography
27740	5	28115	31891	DUP	W060000006	Anions by Ion Chromatography
27740	6	28115	31891	MS	W060000006	Anions by Ion Chromatography
27740	7	28115	31891	MSD	W060000006	Anions by Ion Chromatography
27740	4	28115	31891	SAMPLE	W060000006	Anions by Ion Chromatography
27774	4	28147	31922	LCS		pH Direct Measurement
27774	9	28147	31922	SAMPLE	W060000006	pH Direct Measurement
27774	6	28147	31922	DUP	W060000014	pH Direct Measurement
27776	2	28149	31925	BLANK		Hexavalent chromium
27776	3	28149	31925	LCS		Hexavalent chromium
27776	5	28149	31925	DUP	W060000006	Hexavalent chromium
27776	6	28149	31925	MS	W060000006	Hexavalent chromium
27776	7	28149	31925	MSD	W060000006	Hexavalent chromium
27776	4	28149	31925	SAMPLE	W060000006	Hexavalent chromium
27776	7	28149	31925	SPK-RPD	W060000006	Hexavalent chromium
27815	1	28187	31976	BLANK		ICP Metals Analysis, Grd H2O P
27815	2	28187	31976	LCS		ICP Metals Analysis, Grd H2O P
27815	4	28187	31976	MS	W060000006	ICP Metals Analysis, Grd H2O P
27815	5	28187	31976	MSD	W060000006	ICP Metals Analysis, Grd H2O P
27815	3	28187	31976	SAMPLE	W060000006	ICP Metals Analysis, Grd H2O P
27815	5	28187	31976	SPK-RPD	W060000006	ICP Metals Analysis, Grd H2O P

Waste Sampling and Characterization Facility
P.O. BOX 1970 S3-30, Richland, WA 99352
PHONE: (509) 373-7004/FAX: (509) 373-7134

11/18/06

F.15 KB

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 120533/ES10
Group#: 20060002
Project#: F04-034
Proj Mgr: Steve Trent A0-21
Phone: 373-5869

The following samples were received from you on 01/03/06. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W060000006	B1H3F5	TRENT @GPP6010 @IC-30	Water CR+6 PH-30	01/03/05

Test Acronym Description

Test Acronym	Description
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@GPP6010	ICP Metals Analysis, Grd H2O P
@IC-30	Anions by Ion Chromatography
CR+6	Hexavalent chromium
PH-30	pH Direct Measurement

Fluor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-034-055		PAGE 1 OF 1	
COLLECTOR Hughes/Deroso		COMPANY CONTACT TRENT, SJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 7K	
SAMPLING LOCATION DR-5		PROJECT DESIGNATION DR-5 GW Treatment Facility Regen Waste Characterization - Waste Stream				SAF NO. F04-034		DATA TURNAROUND 15 Days / 45 Days	
ICE CHEST NO. GRP-05-002		FIELD LOGBOOK NO. HNF-N-4281		COA 120533E510		METHOD OF SHIPMENT GOVERNMENT VEHICLE		1-3-06	
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO.				BILL OF LADING/AIR BILL NO.			
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS		PRESERVATION		Cool 4C	None	Cool 4C	None
				TYPE OF CONTAINER		P	G/P	G/P	G/P
				NO. OF CONTAINER(S)		1	1	1	1
				VOLUME		60mL	125mL	500mL	125mL
		SPECIAL HANDLING AND/OR STORAGE 20060002		SAMPLE ANALYSIS		IC Arsenic - 300.0 (Chloride, Sulfide)	ICP Metals - 6010A (TAL) (Chromium, Sodium)	Chromium Hex - 7196;	pH - 150.1;
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME			
B1H3F5		WATER		1-3-06		08:50		X X X X	
W06000006									
CHAIN OF POSSESSION				SIGN/ PRINT NAMES				SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME		<p>** The laboratory is requested to filter all samples with a 0.45 micron filter and to preserve the metals with HNO3 to a pH less than 2.</p> <p>Vess: 1</p> <p>Regen 50</p>	
Kevin Hughes		1-3-06 1000		[Signature]		1/3/06 1000			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
LABORATORY SECTION		RECEIVED BY				TITLE			
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD				DISPOSED BY			
						DATE/TIME			